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DOES LOW HDL-C INCREASE CHD RISK WHEN TG & LDL-C ARE NORMAL? THE FRAMINGHAM OFFSPRING STUDY

Moderated Poster Contributions
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Background: Low levels of HDL-C are inversely correlated with risk of coronary heart disease (CHD). However, the association between low HDL-C and CHD risk in subjects with normal TG and LDL-C levels has not been well studied. We hypothesized that low HDL-C raises CHD risk in subjects with elevated levels of TG and LDL-C, whereas isolated low HDL may not be a strong predictor of risk.

Methods: Incident CHD was evaluated in 3560 men and women in the Framingham Offspring Study with baseline measurements obtained between 1987-1991. Low HDL-C was defined by levels below the median (M<42, F<54 mg/dL), and stratified by TG (<>100, <>150, <>200 mg/dL) and LDL-C (<>100 mg/dL).

Results: Low HDL-C with normal TG (<100 mg/dL; Circulation 2011; 123:2292) and LDL (<100 mg/dL) represented 7.4% of the low HDL-C phenotype. During follow-up (mean=18 years), incident CHD was rare in this group (5%, n=126), with rates similar to those with higher HDL-C and normal TG and LDL-C (4%, n=343). In contrast, higher CHD rates were observed when low HDL-C was combined with higher TG and/or LDL-C, after adjustment for age, sex, diabetes, hypertension and smoking (Table).

Conclusions: In the Framingham Offspring Study, isolated HDL-C levels lower than the median are associated with low risk of CHD. These data suggest that the low HDL-C phenotype may not be atherogenic unless other lipid risk factors are present.

Incident CHD with Low HDL-C Stratified by TG and LDL-C				
Low HDL-C +	N	Rate (%)	HR (95% CI)	p
TG<100, LDL<100	126	5%	referent	
TG<100, LDL>100	446	11%	2.0 (0.8, 4.6)	0.12
TG>100, LDL<100	148	18%	2.4 (1.0, 5.8)	0.06
TG>100, LDL>100	994	19%	2.3 (1.0, 5.3)	0.04
TG>150, LDL>100	556	21%	2.9 (1.2, 6.6)	0.01
TG>200, LDL>100	262	24%	3.0 (1.2, 7.0)	0.02